REMARKS

As noted previously, the Applicant appreciates the Examiner's thorough examination of the subject application.

Claims 1-25 are pending in the application and were rejected in the Office Action mailed 26 November 2007 on various statutory grounds, described in further detail below.

Claims 1, 13, and 25 are amended herein. No new matter has been added.

Applicant requests reconsideration and further examination of the subject application in light of the foregoing amendments and the following remarks.

Claim Objections

Concerning item 1 of the Office Action, claim 25 was objected to for an informality. Specifically, the Examiner stated that "control the method" should be "perform the method." In response, claim 25 has been amended in accordance with the Examiner's statement.

Claim Rejections – 35 U.S.C. § 102

Concerning items 2-3 of the Office Action, claims 1, 6-11, 13, 18-23 and 25 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,292,918 to Sindhushayana et al. ("Sindhushayana"). Applicant respectfully traverses the rejection and requests reconsideration for the following reasons.

For a rejection under 35 U.S.C. § 102(b) to be proper, the cited reference must teach, either expressly or inherently, each and every limitation of the claim(s) at issue. In this situation, Sindhushayana fails to teach (or suggest) each and every limitation of independent claims 1 and 13, from which the remaining claims subject to the rejection depend. Applicant therefore submits that the rejection is improper and should be withdrawn accordingly.

The Sindhushayana reference cited by the Examiner discloses a decoding processor as detailed at column 8, lines 25 to 55. As explained in Sindhushayana, with reference to its figure 2, a packet enters the decoding processor and a counter is set to zero. For each decoding iteration of the packet the counter is incremented. When the counter reaches a pre-determined number of iterations (TR), the decoder determines the minimal absolute value of the LLR probability values L of the bits in the packet. If the minimal LLR probability value is not above a pre-determined absolute probability threshold, then the decoding process continues. However, if the minimal LLR probability value is above the pre-determined absolute probability threshold, then the packet is passed for CRC checking. If the CRC is correct decoding of the packet is terminated.

Present Invention

The decoding methods/apparatus (systems) of the present invention are defined in amended independent claims 1 and 13 of the present application, and are described, at least, at pages 4 to 7 of the subject application. Amended claim 1, representative of the independent claims of the subject application, recites the following:

1. A method for decoding a received sequence of symbols of a frame using a turbo decoding process that comprises a plurality of decoder iterations, the method comprising:

determining whether a pre-determined decoder termination threshold metric has been met;

if the threshold metric has been met but only after a pre-determined number of decoder iterations marking the frame as potentially inaccurate for further processing and passing the frame for cyclic redundancy check testing, or if the threshold metric has been met before the pre-determined number of decoder iterations passing the frame unmarked for cyclic redundancy check testing;

only if the threshold metric has been met, determining whether a decoder termination test based on a cyclic redundancy check code has been passed; and

only if the cyclic redundancy check test has been passed, terminating the decoder iterations.

[Emphasis added]

The decoding method/systems of the present invention, e.g., as according to exemplary embodiment recited in the claims, can include the following steps/elements. The frame of data is turbo decoded a plurality of times ("*a turbo decoding process that comprises a plurality of decoder iterations*"). The frame of data is then fed to a threshold metric processor which performs a threshold metric test. The threshold metric test determines whether decoding should terminate based on whether a threshold metric has fallen above or below a particular threshold metric value, as explained at page 5, lines 4 to 8 of the application as filed ("*determining whether a pre-determined decoder termination threshold metric has been met*").

The maximum iteration processor then marks the frame of data as potentially inaccurate for further processing if the frame of data passes the threshold metric test but only after the frame of data has been iterated many times (more than the pre-determined number of times) as explained at page 7, lines 8 to 11 of the application as filed ("*if the threshold metric has been met but only after a pre-determined number of decoder iterations marking the frame as potentially inaccurate for further processing and passing the frame for cyclic redundancy check testing*"). However, if the frame of data passes the threshold metric test when the frame of data has only been iterated a few times (less than the pre-determined number of times), then the maximum iteration processor does not mark the frame of data ("*if the threshold metric has been met before the pre-determined number of decoder iterations passing the frame unmarked for cyclic redundancy check testing*").

Regardless of whether the claimed maximum iteration processor has marked the frame of data for further processing or not, if the frame of data passed the threshold metric test it is passed to a

CRC processor for cyclic redundancy check testing. The CRC processor performs a CRC test ("*determining whether a decoder termination test based on a cyclic redundancy check code has been passed*") and decoding is terminated if the CRC test is passed as described on page 4, lines 8 to 12 of the application as filed ("*only if the cyclic redundancy check test has been passed, terminating the decoder iterations*").

Consequently, as stated at page 7, lines 11 to 13 of the subject application as filed, the systems/methods of the present application is able to identify frames which are unlikely to be correct (as a result of many iterations) even if the CRC test is then subsequently successful.

Applicant submits that the claims as amended recite an additional step/element (the maximum iteration processor) not disclosed (or suggested) in Sindhushayana. This additional step/element provides an advantage over the system of Sindhushayana since the processes/systems of the present application are able to identify frames which are potentially suspect.

Consequently, amended independent claims 1 and 13, and their dependent claims, are seen as being novel and an unobvious over Sindhushayana.

For the sack of clarity and consistency, Applicant notes that in Applicant's previous paper, it was described that an embodiment of a system of the present application included that the data was turbo decoded and then it was determined whether the data had been decoded a pre-set number of times, i.e., if the threshold metric had been met. It is clear from the description on page 5, line 22 to page 7, line 6 of the application as filed that different threshold metrics can be used with systems of the present application, for example, a cross entropy test, a log likelihood ratio test or a sign change ratio test could be used for the threshold metric. The use of a pre-set number of decoder iterations as the threshold metric is merely one type of basic threshold metric according to an exemplary embodiment.

Thus, for at least the foregoing reasons, Sindhushayana is an improper basis for a rejection of claims 1, 6-11, 13, 18-23, and 25 under 35 U.S.C. § 102(b), and Applicant requests that the rejection

of these claims be removed accordingly.

Claim Rejections – 35 U.S.C. § 103

Concerning item 4 of the Office Action, claims 2-5, 12, 14-17, and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sindhushayana. Applicant traverses the rejection and requests reconsideration since, as has been described previously, Sindhushaya does not teach or suggest the limitations of claims 1 and 13, which are the base claims for claims 2-5, 12, 14-17, and 24. For at least this reason, the rejection of claims 2-5, 12, 14-17, and 24 under 35 U.S.C. § 103(a) is improper, and Applicant therefore requests removal of the rejection.

Conclusion

In view of the amendments and remarks submitted herein, Applicant respectfully submits that all of the pending claims in the subject application are in condition for allowance, and respectfully requests a Notice of Allowance for the application. Authorization is hereby given to charge our deposit account, No. 50-1133, for the fees corresponding to a Petition for Extension of Time (one-month) under 37 CFR § 1.136, and for any other fees that may be required for the prosecution of the subject application. If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

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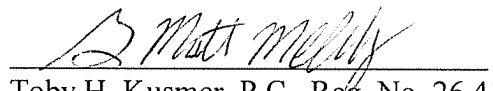

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